

NEW BEES AND WASPS—PART VIII

A New Species of *Exoneura*, with Notes on Other Reed-bees from the Grampians

By TARTLTON RAYMENT, F.R.Z.S.

Introductory

During December, 1946, Mr. Owen Dawson, of Clyde, Gippsland, a keen collector of the indigenous *APOIDEA*, visited the Grampians (Victoria). Bellfield Peak, at an altitude of 2,250 feet, proved to be a rich field. Many specimens were taken on flowers of *Goodenia ovata*, *Calytrix Sullivanii*, *Melaleuca decussata*, *Dillwynia glaberrima*, *Platylobium obtusangulum*, *Boronia pilosa*, *Leptospermum myrsinoides*, *Melaleuca squarrosa*, and *Olearia ramulosa*. On top of the range, and down the western slope, reeds and sword grass flourish, the flower stems of the latter averaging five to six feet in height.

In fine weather (80° F. at mid-day), Mr. Dawson collected some 30 pithy stems which were occupied by several species of *Exoneurae*. Since the puddings, eggs, larvae, and pupae are the first to be discovered, and shed much additional light on the relationships and habits of these remarkable wild-bees, it is thought advisable to include *all* the new material in another paper to form Part VIII of the series. One new record by Norman Rodd is included.

With one exception, entrance to the stem was made at the broken end, where the pithy centre is exposed and the woody walls extremely thin. In one case, the entrance was effected through the side, but I suggest that some other insect was responsible for the original bore that exposed the pith of the interior.

Exoneura simillima, sp. nov.

I can find no character in the adult female to separate it from the female of *E. holmesii* Raym., except that the abdomen and legs are of a darker and richer red; but the male is very different, and easily distinguished.

The male of the new species has a similar ivory-coloured "T" on the clypeus, the stem of which narrows at the base to a point in both bees, but the clypeus is covered with long lank white hair in *holmesii*, and copious stiff black hair in the new species (as in *E. hamulata* Cldl.).

There is a large circular black patch dorsally on the segments at the base of the abdomen, but it is covered with short appressed white hair in the new species [with black hair in *holmesii* and *hamulata*].

The mesothorax in *simillima* has much black hair, but it is long and lank, being dull-white in *holmesii*. The hind legs have much coppery-red hair in the females.

By the larvae, these species are close to *E. hamulata* Ckll., for they have the first appendage with three "fingers", the second with a short basal one, while the third is simple; the other segments of the abdomen have short inconspicuous nodes.

The series were in pithy stems of a sword-grass, and the galleries averaged about 6 cm. in length, with a diameter of 3.4 mm.; the entrance was contracted with a beautifully-formed ring of smooth fibrous material (actually, this is vegetable pith incorporated with a secretion from the salivary glands).. Several larvae were lying along the gallery, touching head and tail. Some were fully-fed, and a number of small cylindrical pellets of excremental debris were attached to the lumen of the tube. The galleries never extend beyond the nodes naturally present in the stem.

Sometimes the females taken from a tube differ considerably. From the large number of plant-stem "nests" I have studied, I am led to believe it is possible that other species may crowd into a tube for mutual warmth and protection. This assembling of species at night is a common trait in *Paracolletes*, *Halictus*, *Nomia* and *Anthophora*—a habit that creates difficulties in associating the sexes, but is nevertheless to be regarded as the element of that clustering in swarms so characteristic of the honey-bees.

General Notes on Various Species of Exoneura

Study of the appendages of larvae in this genus has demonstrated that it is often inadvisable to describe new species in the absence of the larval forms. The characters separating many of the bees are insufficient for satisfactory taxonomic description, and nowhere is this more evident than in the *angophorae* group.

There are several forms described as subspecies and varieties, but it is fairly safe to say that when all the larval forms are known, they will ultimately be found to be valid species. The several bees may be separated as follows:

- E. occidentalis* Ckll.—Face black, no-clypeal mark; hind legs black.
- E. angophorae* Ckll.—Face with lateral small yellow marks; hind legs red, with much black hair.
- var. *obliterata* Ckll.—Clypeal narrow stripe suffused or even sub-obsolete; no lateral marks on "face"; hind legs with black hair.
- var. *incerta* Ckll.—Pale lateral marks reduced to mere dots.
- var. *hackeri* Ckll.—Later treated as a species; white clypeal band very broad, with large lateral pallid marks.

If we accept the form having only rudimentary larval appendages as *angophorae*, then *obliterata* is quite distinct, since the larvae possess two long simple "arms" without "fingers", after the manner of *E. angophorella* Rayment.

The several females have been grouped together, but the males are very different. Here again caution is necessary, for unless the two be taken together in a plant-stem, it will be impossible to

associate the sexes correctly. I propose to elevate to specific rank the form for which I append a specific description.

Exoneura obliterated (Ckll.) Rayment, stat. nov.

TYPE: Male—length, 7 mm. Black with red abdomen.

Head black, shining; the "face" excavated, leaving the area between the scapes very high; the clypeus is suffused with red until it is of the same colour as the legs; labrum red; yellow of mandibles suffused with red, but black apically; scapes and flagella light red beneath. A few long golden hairs about the margin of the clypeus, labrum and mandibulae.

Mesothoracic disc polished black, as are the scutella and metathorax, which has a delicate tessellate area; tegulae piceous; axillae light reddish. Scattered long golden hairs on pleura.

Abdomen clear chestnut-red, dusky apically, with a microscopic cancellation and puncturation and a few golden hairs.

Legs red; some black basally on the femora; a few black and many coppery hairs on hind tibia and basitarsus.

Wings yellowish, nervures and pterostigma reddish-amber.

ALLOTYPE: Female—length, 7.5 mm. Black with red abdomen.

Head with orbital margins converging below; clypeal stripe, with irregular edges, suffused with reddish, closely and finely punctured; labrum reddish; mandibles with median red patch; scapes reddish in front, flagellum obscurely reddish beneath.

Mesothorax and scutella shining, but with an excessively delicate tessellation; some long white plumose hair on the pleurae and metathorax laterally; on the anterior "corners" of the mesothorax a few long black hairs; tubercles black with a white fringe.

Abdomen light chestnut red, a black circular patch apically with some pale golden hairs (on a few, the two apical segments are almost black; some have a blackish spot on the basal segment).

Legs red, with black on coxae, trochanters and anterior femora basally; hind tibiae and tarsi with stiff black hair.

Wings yellowish; pterostigma and nervures dark-amber.

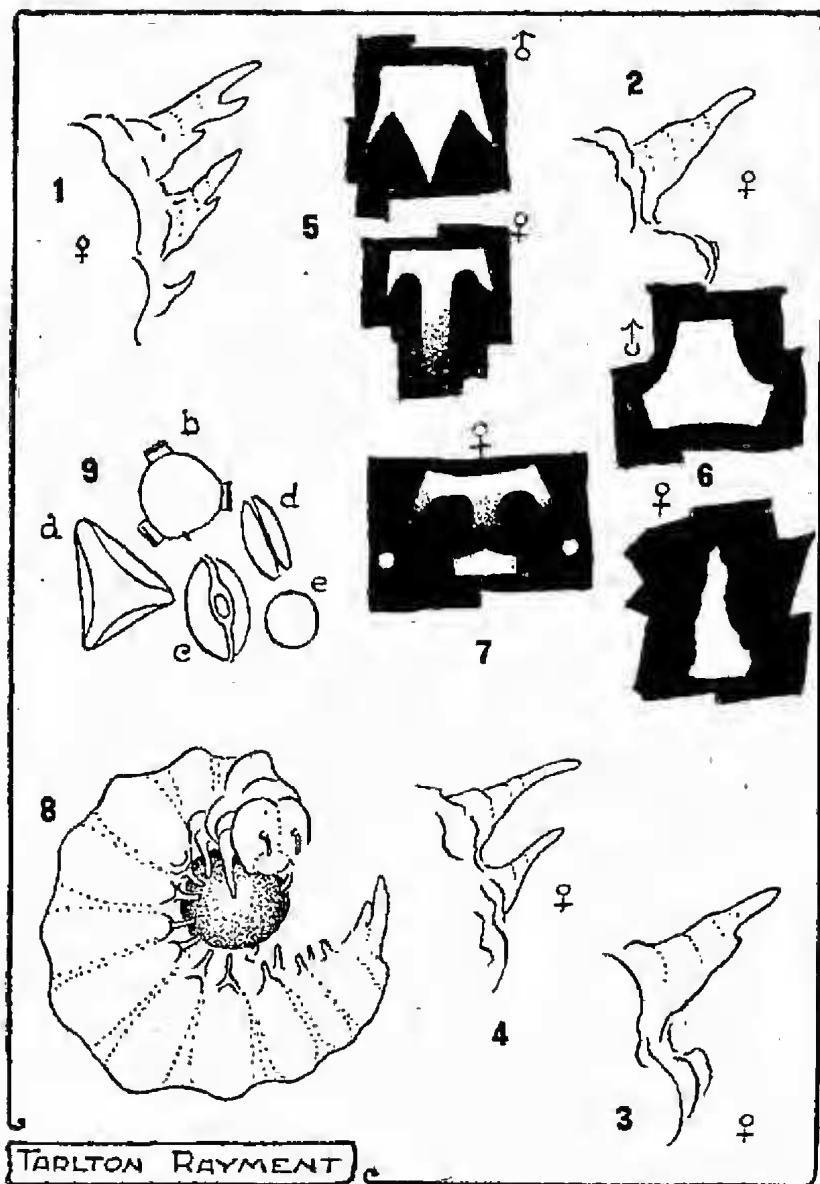
Locality: Grampians, Vic. Dec. 4, 1946. Owen Dawson.

TYPE and ALLOTYPE in the collection of the author.

The nest series was taken from the pithy flower-stalk of a reed, and contained three adults and seven larvae. By their larval appendages, the bees are related to *E. froggatti* Ckll., *E. angophorella* Raym., and the black species *E. roddiana* Raym.

The "arms" are simple, and lack the finger-like appendages of *E. hamulata*; the segmental nodes are long, and the head processes short.

Each larva was supplied with an individual pudding of pollen, some 2 mm. in diameter, which was held in the ventral curve of



KEY TO ILLUSTRATION

1. Larval appendages of *Exoneura similina*, sp. nov.
2. Ditto of *E. froggattii* Ckll.
3. Ditto of *E. fultoni* Ckll.
4. Ditto of *E. obliterata* Ckll.
5. Clypeal marks of male and female *E. similina*.
6. Clypeal marks of male and female *E. obliterata* Ckll.
7. Clypeal and lateral marks of female *E. angophorella* Raym.
8. Larva of *E. obliterata* and its pudding of yellow pollen from a species of *Melaleuca*.
9. Pollen from the puddings: (a) *Leptospermum*; (b) and (c) *Goodenia ovata*; (d) *Dillwynia*; (e) species unknown.

the body. Some of the puddings were orange-coloured, and these were composed of triangular granules from some myrtaceous plant (other females were taken on *Melaleuca decussata*, and *M. squarrosa*, also *Leptospermum myrsinoides*). The cream-coloured puddings contained pale spherical granules from some undetermined plant.

Exoneura froggatti Ckll.

A series of females, typical in all characters, from the pithy stems of sword-grass.

Grampians, Vic. Dec. 7, 1946. Owen Dawson.

By its larvae, this species is related to *E. obliterated* Ckll., and the black species *E. roddiana* Raym., for the "arm" is simple, being without "fingers". Other segmental nodes are absent. Each larva was supplied with an individual pudding of triangular cream-coloured myrtaceous granules.

Exoneura fultoni Ckll.

Several series of females, typical in all characters, from pithy stems of sword-grass.

Grampians, Vic. Dec. 4, 1946. Owen Dawson.

From one tube two females were taken, with seven larvae in all stages of development from egg to pupa. The gallery measured 6 cm. in length, with a diameter of 3.5 mm., and terminated at a node. Other stems contained mature adults, but no larvae; all were engaged in boring into the pith.

The larvae have one prominent appendage with two "fingers". The several eggs were massed together on one pollen pudding at the base of the tube.

Exoneura montana Raym.

New record for the State; described from Macpherson Range, N.S.W.

A series of four males and five females, typical in all characters except for the wholly black abdomen of the males. This species is often mistaken for *E. hamulata* Ckll., but it is quite distinct.

Unfortunately, no larvae were present in the "nest", only one pupa.

Patonga Beach, N.S.W. in a stem of lantana. Nov. 30, 1946. Norman W. Rodd.

Exoneura roddiana Raym.

New record for State; described from Sydney, N.S.W.

A series of one male and three females, typical in all characters, but no eggs or larvae were present; found in stems of reed.

Grampians Range, Vic. (alt. 2,250 feet). Dec. 4, 1946. Owen Dawson. In stems of reed.